

Claims

1. A buoyant platform apparatus comprising a wind speed measurement device, characterised in that the wind speed measurement device comprises a laser radar (lidar) arranged to make wind velocity measurements at one or more remote probe volumes of known position relative to said buoyant platform.
2. An apparatus according to claim 1 wherein the wind speed measurement device is arranged to acquire wind velocity measurements from remote probe volumes at a plurality of positions such that a true wind velocity vector can be determined.
3. An apparatus according to any preceding claim wherein the lidar further comprises a beam scanning means.
4. An apparatus according to claim 3 wherein the beam scanning means is arranged to provide a conical scan.
5. Apparatus according to any preceding claim wherein the wind speed measurement device further comprising motion sensing means that, in use, monitor motion of the buoyant platform.
6. An apparatus according to claims 5 wherein the motion sensing means comprises a rotation sensor.
7. An apparatus according to any one of claims 5 to 6 wherein the motion sensing means comprises a roll sensor.
8. An apparatus according to any one of claims 5 to 7 wherein the motion sensing means comprises a heave sensor.
9. An apparatus according to any one of claims 5 to 8 wherein the motion sensing means comprises a translation sensor.

10. An apparatus according to any one of claims 5 to 9 wherein a processing means is additionally provided to receive the output of the motion sensing means and to calculate the absolute position of the remote probe volume of each wind velocity measurement.
11. An apparatus according to claim 10 wherein the processing means receives the platform velocity measured by the motion sensing means and compensates said wind velocity measurements for relative platform velocity.
12. An apparatus according to any preceding claim wherein data storage means are additionally provided.
13. An apparatus according to any preceding claim wherein the lidar is bistatic.
14. An apparatus according to any preceding claim wherein the lidar is optical fibre based.
15. An apparatus according to any preceding claim wherein the wind speed measurement device is mounted within the buoyant platform apparatus.
16. An apparatus according to any preceding claim wherein means are provided to clean the optical port through which the radiation transmitted and received by the lidar passes.
17. An apparatus according to any preceding claim wherein the lidar has a substantially vertical look direction during use.
18. An apparatus according to any preceding claim wherein the buoyant platform apparatus is a buoy.

19. A method of determining wind velocity in the vicinity of a buoyant platform characterised by the steps of (i) taking a laser radar (lidar) attached to the buoyant platform and (ii) using the lidar to acquire wind velocity measurements from one or more remote probe volumes of known position relative to the moveable platform.

20. A method according to claim 19 and further comprising the step of (iii) using motion sensing means to measure motion of said moveable platform.

21. A method according to any one of claims 19 to 20 and comprising the additional step of (iv) acquiring wind velocity measurements from a plurality of probe volumes of known position relative to the moveable platform

22. A method according to any one of claims 19 and 21 and comprising the additional step of (v) compensating the acquired wind velocity measurements for the relative velocity of the platform.